# — Soil Fertility Note 7 —
# Soil Acidity

**October 1996**

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Soil testing is the way to find out if the pH level of your soil is below the optimum range for the crop you want to grow. Low soil pH increases the available aluminum content in the soil, which can be toxic to plant roots. Low pH also increases the availability of manganese, which is a required nutrient that is toxic if excessive amounts are present. Low soil pH reduces the efficiency by which plants take up nutrients and can also bind nutrients into forms that are not available for plant uptake.

When a soil test report recommends lime, the application rate given is expressed as T, for tons per acre, or M, for lb/1000 $ft^2$. Application of the suggested rate should increase the pH to a level suitable for the crop. Unlike fertilizer, lime can be applied at any time of year. Changing the soil pH requires a chemical reaction that does not occur immediately. Therefore, lime should be applied as soon as possible after the need is realized.

Lime is available in pulverized and pelletized forms. Both types contain the same lime material, but the form is different. Both types work equally well with no significant differences in reaction time or results. The pulverized form is less expensive, but the pelletized form is easier to apply.

There are two types of lime available, calcitic and dolomitic. Calcitic lime is composed of calcium carbonate and contains little or no magnesium. Dolomitic lime is a mixture of calcium and magnesium carbonate and contains a minimum of six percent magnesium. On soils where magnesium is difficult to maintain, dolomitic lime can be used as a source of magnesium. If both lime and magnesium are needed, use dolomitic lime. Most bagged lime sold contains dolomitic lime.

Best results will be achieved if the suggested amount and type of lime is thoroughly mixed into the upper six inches of soil. Without mixing, lime may only move down through the soil profile at a rate of one inch or less per year. If mixing of lime into the soil is not possible, rates up to 1.0 ton/acre (1.0 T) or 50 lb/1000 $ft^2$ (50 M) can be surface applied. If the suggested treatment rate is higher, apply part of the lime now and another portion the following season. It may be wise to resample one year after applying large amounts of lime to evaluate the soil pH.

Contrary to what some people will tell you, it is possible to apply too much lime. If the soil pH becomes too high, micronutrient deficiencies can occur. It is much more difficult to lower soil pH than it is to raise it. Therefore, be sure to apply only the amount of lime suggested.

Having the proper soil pH is just as important as applying the proper fertilizer. Applying extra fertilizer will not compensate for having an improper soil pH. The only way to evaluate the soil pH accurately is to have a fertility analysis done.

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**Questions or comments should be directed to the Soil Testing Section of the NCDA&CS Agronomic Division. Additional information on soil testing, nematode testing and plant/waste/solution analysis is available from the NCDA&CS Agronomic Division.**

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